

N<sup>o</sup> 29,198



A.D. 1911

*(Under International Convention.)*

Date claimed for Patent under Patents and Designs  
Act, 1907, being date of first Foreign Appli- } 25th Apr., 1911  
cation (in Germany),

Date of Application (in the United Kingdom), 28th Dec., 1911

At the expiration of twelve months from the date of the first Foreign Appli-  
cation, the provision of Section 91 (3) (a) of the Patents and Designs Act,  
1907, as to inspection of Specification, became operative

Accepted, 2nd May, 1912

#### COMPLETE SPECIFICATION.

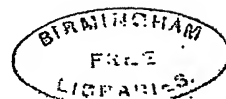
#### Improved Device for Fixing in Place a Number of Wheels Arranged on One Shaft.

We, BERGMANN-ELEKTRICITÄTS-WERKE AKTIENGESELLSCHAFT, of Oudenarder-  
strasse 23—32, Berlin, in the Empire of Germany, do hereby declare the nature  
of this invention and in what manner the same is to be performed, to be  
particularly described and ascertained in and by the following statement:—

- 5 It is frequently required that a series of wheels arranged on one shaft shall  
be kept exactly in the same relative lateral position; such is the case for  
example with the wheels of multi-stage turbines, pumps, blowers or the like.  
This maintenance of relative position has generally been secured by causing the  
10 nave of the wheel first threaded on to the shaft to abut against a collar thereon  
and the nave of the next wheel to abut against that of the first and so on, the  
whole series being kept in place by a nut screwed on to the shaft itself or on  
to a part fixed thereto. In the manufacture of the wheels on a large scale it  
may easily happen that the breadth of the nave is somewhat too great or too  
small. When the wheels are simply juxtaposed in the manner described these  
15 errors of manufacture become added together and in consequence the series of  
naves may be either too large or too small for the space allotted to it. This  
objection which renders mounting of the wheels extraordinarily difficult can  
only be avoided by the exercise of great care in the manufacture of the wheels.  
A further disadvantage accrues when the series of naves and the shaft are subject  
20 to variations of temperature; the expansion of the naves under this condition  
is generally not the same as that of the shaft in the usual constructions of steam  
turbines. It may happen therefore that the naves no longer lie closely against  
each other, a condition which may easily give rise to untrue running of the  
wheels if the breadth of the nave is small in comparison with the diameter of  
25 the wheel. Both these disadvantages are completely avoided by the use of the  
construction described in this specification.

- According to the present invention the relative position of the several wheels  
is secured by means of rings introduced into grooves turned at suitable distances  
apart in the shaft. Such a construction is illustrated in the accompanying  
30 drawings, in which Fig. 1 is an axial section through part of the series of  
wheels, and Fig. 2 is a cross section. In the shaft *a* on which the wheels *f*.

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*Improved Device for Fixing in Place a Number of Wheels Arranged on One Shaft.*

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are mounted, are turned grooves *b* at distances apart corresponding with the width of one wheel nave or of several wheel naves. Into these grooves are introduced divided rings *c*, *d*, which project beyond the periphery of the shaft. Each of these rings is held together by the nave or parts of the nave of the next succeeding wheel and serves in this manner as an abutment for fixing the adjacent wheels and securing their position at right angles to the axis. The ring is preferably held in place by an annular flange *e* on the nave. 5

Having now particularly described and ascertained the nature of our said invention, and in what manner the same is to be performed, we declare that what we claim is:— 10

A device for securing in position several wheels on one shaft at right angles to the axis thereof, consisting of divided rings inserted in grooves on the shaft in such a manner that each of these rings is held together by the nave or parts of the nave of the adjacent wheel, substantially as described. 15

Dated this 28th day of December, 1911.

ABEL & IMRAY,  
Birkbeck Bank Chambers, London, W.C.,  
Agents for the Applicants.

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( 1 SHEET )

THE COMPLETE SPECIFICATION OF BERGMANN—ELEKTRICITÄTS WERKE AKT.—GES.

Fig.2.

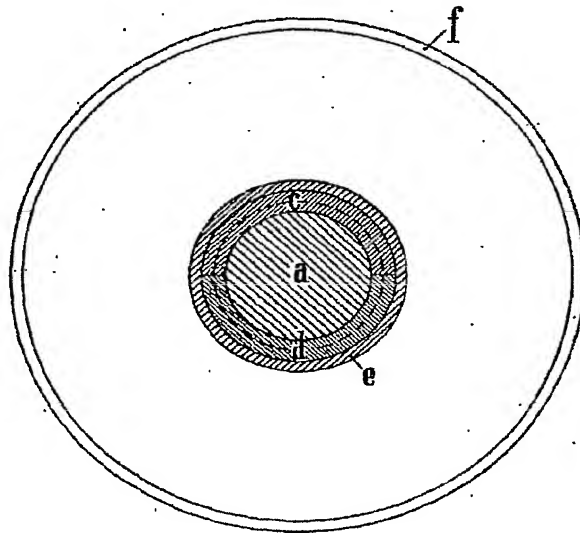
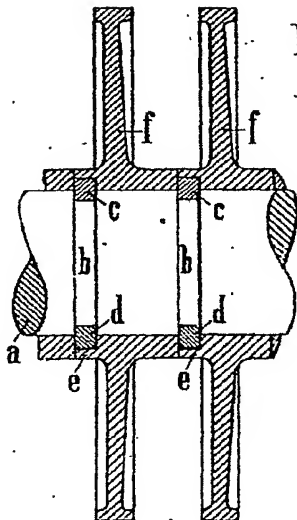


Fig.1.



[This Drawing is a reproduction of the Original on a reduced scale.]

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